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RESEARCH

COVID-19 perceptions and vaccine hesitancy: Acceptance, attitude, and barriers among Cameroonians

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ABSTRACT

Background: Information about Cameroonians' views toward coronavirus disease 2019 (COVID-19) and amenability to receiving a vaccine is emerging. Learning more about Cameroonians' vaccine perspectives could guide prevention messaging and facilitate optimal communication modalities.

Objectives: The primary objective of this study was to analyze the willingness to receive a COVID-19 vaccine among Cameroonians, pending availability. The secondary objectives were to assess perceptions of COVID-19's origin and to gauge views toward government-mandated vaccinations.

Methods: An 11-item questionnaire queried Cameroonians in-person and online, from March through May 2021, about their demographics and whether they believed that COVID-19 was man-made, whether COVID-19 vaccinations should be governmentally mandated, and whether they would receive a COVID-19 vaccine, if available. A free-text option inviting rationales for COVID-19 vaccine hesitancy was included. In-person participation took place on the grounds of St. Louis University in Douala, Cameroon, and was restricted to participants lacking Internet access or electronic mobile devices. Online participation included use of an electronic link that contained questionnaire content located within Google Forms.

Results: A total of 591 respondents participated by replying to at least 8 items on the questionnaire, 386 online and 205 in-person. Over 80% stated that they previously received a seasonal influenza vaccine. Roughly, 87% reported unwillingness to receive a COVID-19 vaccine, if available. Approximately 95% of respondents disagreed with governmental mandates on COVID-19 vaccinations. About 75% attributed COVID-19 to man-made as opposed to natural beginnings. Seven respondents' free-text comments cited lacking confidence in a COVID-19 vaccine, discriminatory COVID-19 vaccine distribution patterns in other parts of the world relative to Africa, and improper COVID-19 vaccine approval timeline.

Conclusion: Raising awareness of COVID-19 misconceptions and barriers to vaccine acceptance is integral to accomplishing immunization goals. Cameroonians' pessimism in this study toward COVID-19 vaccination was multifaceted. Our findings signal a need for additional research that requests more qualitative insights, for example, interviews, focus groups, into vaccine aversion.

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Background

The coronavirus disease 2019 (COVID-19) pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) remains a threat to public health worldwide.¹ As of August 2021, the pandemic had infected more than 220 million worldwide, resulting in at least 4.4 million deaths, thus making SARS-CoV-2 a leading cause of mortality.^{1,2} Since the outbreak in 2019, nonpharmaceutical

Key Points**Background:**

- Widespread theories exist about coronavirus disease 2019's (COVID-19) conception and rationales for why some people are averse to receiving a COVID-19 vaccine.
- African countries have reported increasing distrust of COVID-19 vaccines and skepticism about COVID-19's beginnings. Initial findings from Cameroon have documented COVID-19 vaccine hesitancy among adults.
- Less attention has been devoted to perceptions of targeted Cameroonian subgroups such as faculty, staff, students, and employees affiliated with university settings.

Findings:

- Cameroonians queried in this study were mostly convinced that COVID-19 arose from man-made as opposed to natural origins.
- This sample of Cameroonians mainly opposed governmental mandates on COVID-19 vaccinations and primarily expressed refusal of a COVID-19 vaccine, if offered.

interventions have been implemented by most countries to reduce disease morbidity and mortality with focus on enforcing hands sanitization, masks policy, social distancing, travel restrictions, school closures, and lockdowns.³⁻⁵ In Cameroon, the government took a number of measures to reduce transmission, including school shutdown, social distancing, wearing of facemasks, and regular hand washing. Meanwhile, some Cameroonians resorted to taking concoctions from herbs and spices to prevent and reduce morbidity that results from COVID-19. Despite these efforts made individually and by government, the number of cases in Cameroon have been on the rise. In Cameroon, areas with the highest recorded rates include the center, Littoral, and East regions, with the highest case fatality rates in the North region (7.1%). The age group most affected was 30-39 years old (28.3%), and mortality was highest in the age group 60-69 years old.⁶ As of June 30, 2021, the highest weekly total reported in June 2021 was 1872 cases.⁷ Recently, the delta virus variant has shown to be easily transmissible, with numerous deaths reported in some African countries.⁸⁻¹⁰ Cameroonians reportedly share similar risks for COVID-19 acquisition as Americans relative to chronic disease states such as hypertension and diabetes.¹¹ Moreover, these findings have not as clearly connected age ranges to COVID-19 acquisition in Cameroon. Nonetheless, the most promising strategy to contain the pandemic and provide hope to reduce the mortality and morbidity rates remains within the capacity of medical technology such as effective, safe, and affordable antiviral agents and vaccines.⁵ Interestingly, other countries hold this view; most youth in South Africa believe that vaccination plays a key role in curtailing this deadly virus.¹¹

Many pharmaceutical companies have prepared several vaccines against the disease with success. Different types of vaccines have arrived on the market and are in use: whole virus, protein subunit, viral vector, and nucleic acid, each of which protects people but producing immunity in a slightly different way. Three vaccines are available in the United States: Pfizer-BioNTech, an mRNA vaccine; Moderna, an mRNA vaccine; and Johnson and Johnson's Janssen, a viral vector vaccine. In Cameroon, 3 different vaccines donated by friendly countries are being administered free of charge. These include the Sinopharm Beijing Institute of Biological Products, an inactivated virus donated by China, Oxford AstraZeneca, a viral vector vaccine donated by the European Union, and Johnson and Johnson Pharmaceutical donated by the United States.¹² These vaccines, however safe, produce adverse effects like any other vaccines.¹³ Nevertheless, there are strict protections put in place by the World Health Organization to ensure the safety of all COVID-19 vaccines through national regulatory policies and rigorous testing.

Although safe, effective, and built to save lives, there are many uncertainties about the COVID-19 vaccines. Social media, rumors, misconceptions, myths, adverse effects, and death are among issues that raise doubts in many people across Africa and in other continents.¹⁴⁻¹⁷ There was a higher hesitancy prevalence in African Americans (41.6%) compared with adult Americans (26.3%) during a survey conducted in America where access to COVID-19 vaccines has been in place since late 2020.^{18,19} Table 1 provides a synopsis of rationales for COVID-19 vaccine hesitancy among selected countries.

Despite these uncertainties, many people accept that the vaccine can protect them from the disease. In South Africa, youths had varied perceptions about the COVID-19 vaccine, but a majority held that vaccination was the best way to attenuate the deadly virus.¹¹ A recent study in some low- and middle-income countries revealed that Africa had lower acceptance odds than Brazil with rates of 76.4%-88.8 %, which depended on the effectiveness of the vaccine.²⁴ In Palestine, 37.8% of health care workers accepted to get vaccinated.¹⁶ Over 66% of respondents among African and Middle Eastern countries agreed to take a vaccine, whereas about 33% refused because of adverse effects and absence of accurate vaccine promotion news.²⁵ Strategies proposed to improve vaccine acceptance rates include meaningful community involvement and collaboration among different societal sectors.²⁶⁻²⁸

Cameroon often assumes the description of "Africa in miniature" because of its geographical and cultural diversity with over 200 ethnic groups with many national languages. Its population has risen to over an estimated 27 million in 2020, with a total land surface area of 472,710 square km. The population consists of 48% young people below the age of 15, while 3.5% are aged 65 and above. About 56.3 % of the population is urban. The country has an annual growth rate of 2.6%.²⁹ Douala, regarded as a "port city," is the most populous Cameroonian city, with approximately 1,338,000 occupants. Cameroon's capital city, Yaounde, trails Douala with roughly 1,300,000 occupants. Bamenda, Dschang, and Buea have sizably fewer occupants, with estimated counts of 393,000, 96,000, and 47,000, respectively.²⁹

Although Cameroon continues to see a steady increase in its population, and almost one-half of its inhabitants are adolescents, Cameroonians as a whole appear remarkably

Table 1
COVID-19 vaccine hesitancy rates and reasons among selected countries

Countries	Hesitancy rate	Reason for hesitancy	Reference
South Africa and most African countries	Some	AstraZeneca COVID-19 vaccine imported had only 66% efficacy compared with the Pfizer COVID-19 vaccine whose efficacy was about 95% after the second dose	Chauke et al., ¹¹ 2021
France	28%	Concern about existing health situation, for example, people living with HIV	Vallee et al., ²⁰ 2021
Kenya	60%	Older age, lower education levels, vaccine safety and effectiveness	Orangi et al., ²¹ 2021
Ireland	35%	Psychological factors such as mistrust of traditional and authoritative sources	Murphy et al., ¹⁵ 2021
United Kingdom	31%		
Palestine	31%	Plan of refusal without concrete rationales	Maraqa et al., ¹⁶ 2021
Zambia	33%	Adults more receptive to children being vaccinated	Carcelen et al., ¹⁴ 2021
Egypt	19%	Mostly seen among females	Dereje et al., ²² 2021
Qatar	20%	Adverse effects cited as biggest barriers	Alabdulla et al., ²³ 2021

Abbreviations used: COVID-19, coronavirus disease 2019; HIV, human immunodeficiency virus.

distrustful of COVID-19 vaccine administrations. According to a survey carried out to assess vaccine hesitancy in adult Cameroonians from May to August 2020, the hesitancy rate was over 84%, attributed mainly to safety concerns.¹⁵ Despite Cameroonians' reported lack of faith in a COVID-19 vaccine, among different methods available to control a pandemic, vaccination is key. Vaccination is occurring in Cameroon and was first administered to health care workers, government officials, and then to the population. With the current situation of emergence of COVID-19 variants, it is important to assess determinants of vaccine acceptability including barriers and beliefs among Cameroonians, to create strategies to improve on vaccination coverage to help end the pandemic.²⁹⁻³¹

Objectives

The primary objective of this study was to analyze the willingness to receive a COVID-19 vaccine among Cameroonians, pending availability. The secondary objectives were to assess perceptions of COVID-19's origin and to gauge views toward government-mandated vaccinations.

Methods

Study design, population, and setting

This study was a population-based, cross-sectional explanatory survey, extending from March 2021 through May 2021 as a time frame that coincided with Cameroon's initial COVID-19 vaccination campaign. Recruitment of prospective participants occurred through e-mail correspondences and social media outreaches from the authors to students, faculty, and staff of St. Louis University (Douala, Cameroon), as these groups served as the target audience for the study. The in-person component of the survey took place on the grounds of St. Louis University Institute in a designated location outside of the institution. The in-person aspect of survey participation consisted of paper-based completions for individuals interested in the study but lacking access to an electronic device or Internet capabilities. Participation in the online survey

component of the study required that participants used their own electronic devices and had Internet access. The authors discouraged sharing of electronic mobile devices among participants. Participants conferred their consent to participate in written form if they lacked Internet access or an electronic mobile device and electronically if they had Internet access and an electronic mobile device. Google Forms served as the medium for online data collection about respondents' demographics, hesitancies, attitudes, acceptances, and barriers toward COVID-19 vaccination. One of the authors served as a Google Forms administrator and adjusted its settings to limit 1 survey submission per electronic device. This author also placed the survey content into a shareable link distributed to the target audience on Facebook and WhatsApp. On Facebook, the authors posted the link in areas within the platform associated with frequent visibility from their knowledge of the target population's perusal patterns. On WhatsApp, certain authors configured their individual user profiles to feature access to a retrievable version of the survey link. The authors instituted a sequential numbering system for both in-person and online survey completions to ensure participant anonymity. To reduce potential bias introduced by self-reported data, the authors assured respondents through periodic Facebook and WhatsApp communications about the confidentiality and privacy of their responses. Respondents were encouraged to share the online survey link to their contacts or acquaintances.

The sample size was determined from a population size of 26,000,000 individuals using the Raosoft sample size calculator, using a margin of error of 5%, a confidence interval of 95%, and an expected response distribution of 50%.³² This gave a minimum sample size of 385 respondents. We, however, enrolled a larger sample size of 591 respondents in order to account for errors and nonrespondents.

Survey development

An 11-item questionnaire served as our data collection medium. Five items queried demographic information, that is gender, age group, education level, city of residence, and

profession. Five items assessed previous receipt of a seasonal influenza vaccine; belief about COVID-19's origin (man-made or natural); views toward government-mandated COVID-19 vaccinations (yes or no); willingness to receive a COVID-19 vaccination, if available (yes or no); and reason for unwillingness to receive a COVID-19 vaccine (6 possible options supplied by the research team). As it relates to these 6 possible options, the survey design prompted respondents to choose from one of the following: (1) I am concerned about the vaccine's side effects (2) I do not believe the vaccine will stop the infection (3) COVID-19 vaccine is a means of implementing the new world order (4) I do not need the vaccine because I wash my hands, use facial coverings, and wear gloves (5) I do not need the vaccine because I am young and healthy (6) I take herbal concoction(s) to prevent acquiring COVID-19. These explanations for why respondents opposed receipt of a COVID-19 vaccine resulted from the research team's knowledge of the respective communities and feedback received from pilot testers of the survey.

In terms of city of residence, we coded all residents from Limbe, Kumba, and Buea as Buea because of the cities' close proximity to each other. For the same reason, we coded all residents from Bafoussam and Dschang as Dschang. A selection of "Other" existed for the city of residence survey item in the event that a respondent's location was absent from the list of options and to accommodate anonymity sought in this regard. For the profession category, respondents could only select 1 description that they felt best represented their occupation; the authors acknowledge that the best description of some respondents' professions may span multiple listings. Respondents encountered an 11th, free-text item at the end of the survey requesting any additional perspectives that they wished to provide about COVID-19 and COVID-19 vaccinations.

The authorship team from reviews of related literature and its interdisciplinary background developed the survey collectively. The authors did not carry out a pilot test of the survey. However, 2 professors of epidemiology from St. Louis University reviewed the survey for content validity. French and English were the 2 languages in which the survey was available for completion. A certified French translator possessing a Master of Art in Translation conducted translations from English to French. The survey was open for the duration of the study period—March 2021 through May 2021.

We used multiple logistic regression tests to perform statistical analyses, accounting for our dichotomous dependent variables, "man-made" or "natural" and "yes" or "no," and our categorical dependent variables, demographics. All data analyses were performed using the SPSS (IBM), version 27, with significance determined a priori as a $P < 0.05$. The Ethical Review Committee of St Louis University Institute approved the study protocol.

Results

A total of 591 respondents, 386 online and 205 in-person, completed the survey. Inclusion of 205 in-person respondents resulted from 250 individuals whom the authors approached with requests to participate (82%). The 181-count difference in participation online as opposed to in-person emanated from in-person respondents lacking either Internet access or an electronic mobile device. The majority of

Table 2
Cameroonian participants' study demographics

Demographics	N
Gender	
Male	137, 143, 133
Female	439, 439, 439
Age group (y)	
16–21	293, 293, 293
22–26	157, 157, 157
27–39	104, 104, 104
≥40	22, 28, 18
Level of education	
High school	61, 61, 61
Postgraduate	87, 87, 87
Undergraduate	428, 434, 424
City of residence	
Bamenda	122, 122, 122
Buea	49, 49, 49
Douala	336, 336, 336
Dschang	44, 44, 44
Yaounde	17, 23, 13
Other	8, 8, 8
Profession	
Health care	37, 37, 37
Private sector	17, 17, 17
Public sector	16, 16, 16
Self-employed	21, 21, 21
Student	455, 455, 455
Teacher	30, 36, 26

Note: The groups of 3 "N" values represent the number of respondents to each survey question in chronological order.

respondents (88%) completed the survey in English. Of the 591 respondents, 501 (85%) responded to the survey item "Did you get a seasonal influenza vaccine before," of which 63 (13%) previously received a seasonal influenza vaccine.

Table 2 reports that females comprised over 3 times the representation than males. Individuals aged 16–21 years made up over half of the study sample, and respondents having completed undergraduate education accounted for approximately 95% of the study sample. More than 3 times the respondents subscribed to COVID-19 arising from man-made beginnings than occurring naturally. A little less than 20 times the respondents disagreed that the government should force COVID-19 vaccinations upon citizens in relation to those that agreed. Almost 30 times the respondents would avoid getting a COVID-19 vaccine, if available, in comparison with those who would receive a vaccine. None of the demographics, including gender, age group, level of education, city of residence, or profession, significantly predicted responses to agreement that COVID-19 was man-made, agreement with governmental mandate of COVID-19 vaccinations, or willingness to receive a COVID-19 vaccination, if available ($P > 0.05$).

Table 3 depicts a total of 495 of 572 (86.54%) respondents stated that they would not take a COVID-19 vaccine if available. This reluctance was ascribed to "concerned about vaccine side effects" ($n = 251$) and "do not believe the vaccine will stop the infection" ($n = 85$). Additional reasons for vaccine refusal were "do not need the vaccine because wash hands, wear gloves, wear masks" ($n = 33$); "do not need the vaccine because young and healthy" ($n = 25$); and "consume herbal concoction to prevent COVID-19" ($n = 30$). Seven respondents out of the 495 unwilling to receive a COVID-19 vaccine provided free-text

Table 3
Cameroonian participants' survey responses

Survey questions	Man-made	Natural	Total no. respondents
Do you agree that COVID-19 is man-made? (Q1)	434	142	576
Do you agree that the government should mandate COVID-19 vaccinations? (Q2)	Yes	No	Total no. respondents
	29	553	582
Do you agree to receive a COVID-19 vaccination, if available? (Q3)	Yes	No	Total no. respondents
	77	495	572

Abbreviations used: Q1, survey question 1; Q2, survey question 2; Q3, survey question 3; COVID-19, coronavirus disease 2019.

responses to affirm their opposition. Five of the 7 free-text responses reiterated “distrust” of a COVID-19 vaccine in similar verbiage. One of the responses asserted, “I saw that the vaccine should not be distributed in the ‘states’ and Europe. So I won’t take it because I am not sure of its composition and effects.” Another response contended, “The vaccine has not taken its normal course of 10 years for it to be approved safe.”

Discussion

This study examined Cameroonians' views of COVID-19's inception, opinions about whether government officials should require COVID-19 vaccinations, and acceptance of a COVID-19 vaccine if widely accessible to the public. Participation in this study was high, likely owing to the versatility of survey delivery; surveys were available in English and French, on-site and online. Survey respondents were primarily students and overwhelmingly believed that COVID-19 derived from man-made as opposed to natural origins; were largely opposed to government forcing its constituents to receive a COVID-19 vaccination; and would forego receiving a COVID-19 vaccination if presented with the option. Data collection for this study preceded official approval of a COVID-19 vaccination.²⁹ Nevertheless, the high rate of vaccine hesitancy in this study was consistent with a previous investigation in Cameroon of vaccine hesitancy.¹⁵ Reservations about receiving a COVID-19 vaccination have also been documented in other African countries, with rationale including concerns over vaccine efficacy and safety, capitalistic agendas of pharmaceutical companies, and convictions that people's health in different parts of the world is being safeguarded more closely than theirs.^{9,12,19,20,23,26} In addition to shared pessimism about efficacy and safety and locales outside of Africa, views on acceptance of a COVID-19 vaccine were also shown to vary by factors such as health statuses, previous receipt of a seasonal influenza vaccine, belief in innate protection against COVID-19, and knowledge of COVID-19 pathogenesis.^{5,12,14,18,21,22} Historical distrust of the health care system among ethnic minorities in the United States also factors into COVID-19 vaccine hesitancy.^{16,17} These diverse explanations of why individuals throughout the world are skeptical about receiving a COVID-19 vaccine could serve as a guide to policies and procedures that are interested in universal improvements of COVID-19 vaccination rates.

Different societal structures among a couple of the participating Cameroonian cities appear to have coincided with their residents' take on COVID-19 and COVID-19 vaccine administration. Yaounde's economic stature seems shaped more by diplomatic considerations than other Cameroonian

cities.²⁸ This may explain why all Yaounde respondents considered COVID-19 to arise from natural origins, felt that the government should mandate COVID-19 vaccinations, and would receive a COVID-19 vaccine, if available. However Yaounde accounted for the lowest number of study respondents among the other cities present (despite being the second largest city in Cameroon), and the number of its respondents for each survey item fluctuated, unlike consistent numbers of respondents from all other cities. Alternatively, Bamenda reportedly houses the largest opposition political party in Cameroon.²⁸ This occurrence could inform why all Bamenda respondents: believed COVID-19 was man-made, opposed governmental mandates on COVID-19 vaccinations, and opted not to receive a COVID-19 vaccine, if available.

In this study, viewpoints about COVID-19 being man-made or natural varied widely within demographic categories. Gaps between female and male along with older versus younger respondents' beliefs about COVID-19's origin were pronounced. Almost all female respondents asserted that COVID-19 was man-made as opposed to no males sharing this perspective aligns with previous research where females more commonly than males believed that a COVID-19 vaccine represents a furtive worldwide agenda.²⁵ This same group of researchers in a separate analysis reported females scoring higher on a vaccine conspiracy belief scale than males.²⁴ Some individuals classified as youth (15-30 years old) in South Africa cast blame on China for creating COVID-19 to gain a global economic advantage.⁹ If younger respondents in our study held analogous sentiments, this may help to explain why they were convinced of COVID-19's man-made nature. All health care workers in our study believed that COVID-19 was man-made compared with no teachers feeling the same way. This disparity may reflect certain teachers being more familiar with COVID-19's life cycle than health care workers.¹⁵

Respondents younger than 40 years old in this study objected to government-mandated COVID-19 vaccinations in contrast to those 40 years old and above. Furthermore, higher educational attainment equated to increase approval of government mandates of COVID-19 vaccines. In addition, each professional designation listed, with the exception of “Teacher,” was against mandates applying to COVID-19 vaccinations. These findings indicate internal consistency among survey respondents in this study as belief patterns of whether COVID-19 was man-made or natural paralleled receptiveness to government-mandated COVID-19 vaccinations. A separate study, querying this same question, reported less than 20% of its respondents, contrasted with roughly 5% of our respondents, in agreement with government requirements on COVID-19 vaccinations.²⁴ Participants in this study were also

mostly females, similar to our study, and mainly from the countries of Jordan, Kuwait, and Saudi Arabia. The approximate 4-fold percent difference in agreement probably reflects our study enrolling an excess of 5 times fewer respondents. Any plans to actualize government-mandated COVID-19 vaccinations would seem unfavorable based on consistent disapproval rates.

Females, younger (≤ 26 years old) and less educated (high school and postgraduate) respondents, and all professional sectors not recognized as either “Student” or “Teacher,” conveyed resistance to receiving a COVID-19 vaccine, pending availability. Females’ aversion to COVID-19 vaccines is widely documented among diverse populations.^{5,9,13,14,16,19–22,24,25} However, a separate account of vaccine hesitancy depicted females as supporters of COVID-19 vaccines.²³ Overall, prominent reasons for females to oppose COVID-19 vaccines seem to center on fear of acquiring reproductive health issues and uneasiness about government officials using COVID-19 vaccines as ongoing monitoring devices.^{9,24,25}

Analogous to our findings, younger age and lower educational attainment in other investigations were factors associated with not wanting to receive a COVID-19 vaccine.²⁴ As younger individuals may be more reliant on COVID-19 updates from social media than older ones, inaccurate information circulating on these platforms may taint younger people’s viewpoints about COVID-19 vaccines.²⁴ Moreover, there have been some instances of health care workers preferring not to receive a COVID-19 vaccine due largely to uncertainties about durability, safety, and contracting COVID-19 disease from the vaccine itself.^{14,23} If health care workers in our study held similar reservations, it would not be as surprising that none of them desired vaccination against COVID-19 disease.

At the time of this article’s composition, multiple COVID-19 vaccines are available, in contrast to their absence during data collection. Nevertheless, respondents’ rationales for refraining from receiving a COVID-19 vaccine, if available, related roughly 5 times more to apprehension about its safety and efficacy as opposed to doubts about their individual COVID-19 protections. While it is clear that vaccination will not completely stop COVID-19 acquisition, complications are often less severe among vaccinated individuals. Therefore, partnerships between health authorities and community outreach will be essential for disseminating accurate data about COVID-19 vaccines’ tolerability and effectiveness to promote immunization uptake. The limited number of free-text comments from respondents expounding upon their decisions to decline a COVID-19 vaccine, if available, centered on alleged discriminatory vaccine allocation strategies and perceptions of inadequate evaluation periods. Utilization of widely acceptable communication outlets, for example social media platforms, to clarify actual vaccine distribution patterns and logistics of vaccine review processes would expectedly assist with facilitating truthful COVID-19 vaccine informational exchanges.

There were limitations to our study. The nature of survey research predisposed our findings to both sampling and response bias, with our methodological design lacking a randomization component. Invariably, other rationales for vaccine hesitancy existed aside from those the authors

incorporated in the survey. In addition, some respondents may have participated in any combination of the COVID-19 protection strategies presented in the survey, that is, handwashing, facial coverings, and wearing gloves, but not all of them. Moreover, these COVID-19 protection strategies were not all inclusive, for example, omission of social distancing precautions. Health care workers at the time of the study were required to wear N95 and other designated masks. However, the balance of the professions represented did not have the same stipulations placed upon their employment. Furthermore, societal perceptions of governmental influences are prone to vary worldwide. Therefore, aversions to government mandates on COVID-19 vaccinations encountered in this study may not reflect prerogatives elsewhere. In addition, conducting in-person survey administrations only in Douala perceptibly led to predominant participation from its residents at the expense of less representation from other Cameroonian cities. Finally, with the vast majority of respondents identifying as students, our results may not be as generalizable to other population sectors as we would have hoped.

Conclusions

Fear of morbidities and mortality associated with its disease process mixed with skepticism of its proposed remedies often shape vantage points on COVID-19 and COVID-19 vaccinations, respectively. The majority of Cameroonians in this study were persuaded that COVID-19 emerged from human design, were against governmental requirements on COVID-19 vaccinations, and were opposed to receiving a COVID-19 vaccination if available to them. Our findings support devoting ongoing attention to debunking myths about COVID-19’s origin and spread along with addressing multifaceted concerns about safety and efficacy associated with COVID-19 vaccines.

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